Phone: (312) 345-7400
TWX-910-226-0402
Cable: LABLINE

LAB-LINE® INSTRUMENTS, Inc.
DESIGNERS AND MANUFACTURERS OF INSTRUMENTS
FOR SCIENCE, INDUSTRY, AND EDUCATION SINCE 1903
Lab-Line Plaza—15th & Bloomingdale Aves.—Melrose Park, Illinois 60160

6640-00-765-0621
DLA120-79-M-E848

Cat No. 18005,
w/1-18005-2 Cable Cover
6-56100 Rack

INSTRUCTION MANUAL

LAB-LINE IMPERIAL III WATER BATH

CAT. NO'S. 18000, 18000-1, 18005, 18005-1, 18010, 18010-1
18050, 18050-1, 18100, 18100-1, 18700, 18700-1
18800, 18800-1, 18900, 18900-1.

(9-056-443-00)

LAB-LINE IMPERIAL III WATER BATH

CAT.NO'S. 18000, 18000-1, 18005, 18005-1, 18010, 18010-1
18050, 18050-1, 18100, 18100-1, 18700, 18700-1
18800, 18800-1, 18900, 18900-1.

FOREWARD

Data and information contained in this manual was compiled by the Engineering Department to enable users of Lab-Line equipment to have a complete understanding of the operation functional capabilities and maintenance of the equipment.

SPECIAL APPLICATIONS

If you require help with special applications using Lab-Line equipment, or are contemplating a new application you may contact the Lab-Line Technical Director for help. Lab-Line welcomes the interaction from the users of our equipment to help us to better satisfy the users' requirements.

LAB-LINE IMPERIAL III WATERBATH

CAT. NO'S. 18000, 18000-1, 18005, 18005-1, 18010, 18010-1
18050, 18050-1, 18100, 18100-1, 18700, 18700-1
18800, 18800-1, 18900, 18900-1.

IMPORTANT: Examine shipping carton and water bath for damage. If any damage call carrier immediately and file claim.

UNPACKING: Unpack carefully. Do not throw away packing materials until they are examined carefully. Make certain that all parts are accounted for.

PACKING LIST

1 Lab-Line Imperial III Water Bath
1 Instruction Manual
1 Inspection Tag
1 Warranty Registration Card

OPERATION

CAUTION: DO NOT TURN MAIN POWER "ON" UNTIL BATH HAS BEEN FILLED WITH LIQUID.

CAUTION: Tests have shown that the use of water with a high mineral content as a bath medium will encourage corrosion beneath the accumulation of sediment on the bath interior. Therefore, it is recommended that distilled, or chemically softened water be used when filling the bath. To further insure against corrosion, a periodic cleaning and drying of the bath is also suggested.

NOTE: Wire brushes, or harsh abrasives should not be used for cleaning. Use household cleansers.

Before making the electrical connection, make certain the outlet has the same characteristics as shown on the nameplate. This unit should be plugged into a standard three prong grounded outlet.

INSTRUCTIONS

Place the water bath on a table or work area in a level position and free from direct drafts. Fill the water compartment with water to within one-inch from the top. Insert the thermometer through the special holder, and place it in the bath so that the mercury bulb is about 3" below the top of the bath.

Turn the power "ON." The pilot lamp will now light up, indicating that the temperature of the water is below the temperature for which the thermoregulator was set. It will be noticed that any temperature when first started will gradually climb to the desired point. Therefore, no adjustments should be made until the bath has stabilized for at least 30 minutes. The numbers on the front plate do not indicate temperature, but are for reference purposes only.

CAT. NO'S. 18000, 18000-1, 18005, 18005-1, 18010, 18010-1
18050, 18050-1, 18100, 18100-1, 18700, 18700-1
18800, 18800-1, 18900, 18900-1

TEMPERATURE CONTROL

Bath has a temperature control system located on the control panel consisting of:

1. Control thermostat with graduated configuration and pilot light.

2. A high safety thermostat with graduated configuration and pilot light.

To set temperature for the bath, first rotate safety dial clockwise to its maximum setting. Select desired bath temperature by rotating "control" dial clockwise (dial numbers are for reference only); pilot light will indicate when heat is actually on.

NOTE: Safety thermostat is used to limit the temperature of the bath to a temperature slightly above the bath termperature. At that point, the thermostat will activate a safety light and turn off the electric heater.

Allow bath to reach thermal equilibrium at the selected temperature. When "control" pilot light is on, turn safety dial counterclockwise until safety pilot light is activated, and "control" light goes off; immediately advance safety dial clockwise until "control" light goes on and safety light goes off. Advance should be held to a minimum. Safety set-point must be reset whenever bath temperature is altered.

DIAGNOSIS OF COMMON PROBLEMS

PROBLEM	DIAGNOSIS
1) Unit is non-operative.	A) Unit not plugged in and/or not plugged in to proper outlet. B) Switch in "off" position.
2) Unit does not heat up.	A) Unit not plugged in and/or not plugged in to proper outlet. B) Switch in "off" position. C) Thermostat knob set to 0. D) Faulty heater. E) Faulty thermostat. F) Temperature of the bath higher than the safety thermostat will allow and consequently has turned off the heater (read the paragraph under "Temperature Control".)
3) Temperature will not increase as thermostat knob is turned to the right.	A) Safety thermostat must be adjusted for every different setting.
4) Safety light is on.	A) Safety thermostat has activated the safety light indicating the heater has been turned off because water temperature is higher than the desired setting.

CAT. NO'S. 18000, 18000-1, 18005, 18005-1, 18010, 18010-1
18050, 18050-1, 18100, 18100-1, 18700, 18700-1
18800, 18800-1, 18900, 18900-1.

CAUTION NOTE

When using a gable cover:

> Be careful when removing cover that the thermometer (which is inserted into the cover) is removed or that caution is used when placing the cover on a flat surface that the thermometer is not broken.

In the event of control or application problems, or if you have any inquiries about this or other laboratory products, the sales and engineering staff of Lab-Line Instruments, Inc., and subsidiaries, are at your service. Please see your dealer, or write directly to:

LAB-LINE INSTRUMENTS, INC.
Designers and Manufacturers
Lab-Line Plaza
15th & Bloomingdale Aves.
Melrose Park, Illinois 60160

LAB-LINE IMPERIAL III WATER BATH

CAT. NO'S. 18000, 18000-1, 18005, 18005-1, 18010, 18010-1
18050, 18050-1, 18100, 18100-1, 18700, 18700-1
18800, 18800-1, 18900, 18900-1.

REPLACEMENT PARTS LIST

CAT. NO'S. 18000, 18005, 18010, 18100, 18700, 18800, 18900.

HEATER (500W)	2-340-183-00
NEON INDICATOR (RED)	0-360-146-00
NEON INDICATOR (AMBER)	0-360-164-00

CAT. NO. 18050

HEATER (300W)	2-340-184-00
NEON INDICATOR (RED)	0-360-146-00
NEON INDICATOR (AMBER)	0-360-164-00

CAT. NO'S. 18000-1, 18005-1, 18010-1, 18100-1, 18700-1, 18800-1, 18900-1.

HEATER (500W)	2-340-185-00
NEON INDICATOR	0-360-147-00

CAT. NO. 18050-1

HEATER (300W)	2-340-186-00
NEON INDICATOR	0-360-147-00

CAT. NO. 18010

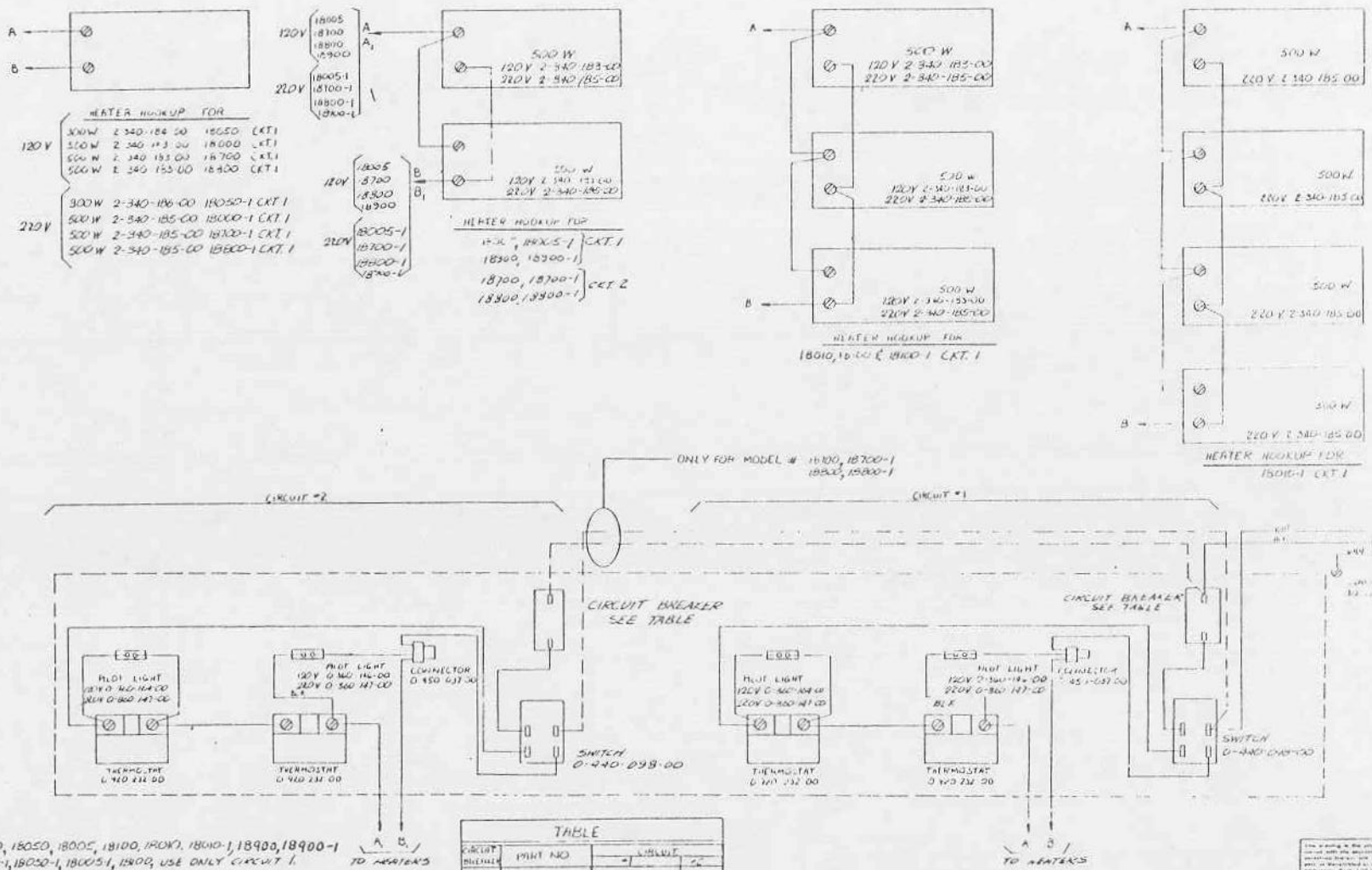
GROMMET	0-790-022-00
THERMOMETER BRACKET	2-584-097-00

ALL OTHER MODELS

GROMMET	0-792-022-00
THERMOMETER BRACKET	2-584-096-00

ALL MODELS

WIRING DIAGRAM	4-227-123-00
THERMOSTAT	0-920-232-00
THERMOMETER	0-910-003-00
SWITCH	0-440-098-00
CORDSET	0-470-105-00



NOTE:

1. CAT NOS 18000, 18050, 18005, 18100, 18010, 18010-1, 18900, 18900-1
   18000-1, 18050-1, 18005-1, 18100, USE ONLY CIRCUIT 1.
2. CAT NOS 18700, 18800, 18700-1, 18800-1 USE CIRCUITS 1 & 2.
3. WIRE CALLOUT: 0-470-110-00 16 GA. (WHITE).
   (INTRA-PANEL CONNECTIONS & TO HEATERS)

TABLE

CIRCUIT BREAKER	PART NO	CIRCUIT #1	CIRCUIT #2
2 AMP	0-330-114-00	18050-1	
3 AMP	0-330-125-00	[illegible]	
5 AMP	0-330-118-00	[illegible]	[illegible]
8 AMP	0-330-140-00	18000-1	
10 AMP	0-330-[illegible]	[illegible] 18010-1	[illegible]
15 AMP	0-330-124-00	18000 18010	

SHEET NO. 1
OF 1 SHEETS
SUBMITTAL NO.
DATE

LAB-LINE INSTRUMENTS
LAB-LINE PLATFORM HOUSE PARK

Phone: (312) 345-7400
Cable: LABLINE

LAB-LINE INSTRUMENTS, Inc.
DESIGNERS AND MANUFACTURERS OF INSTRUMENTS
FOR SCIENCE, INDUSTRY, AND EDUCATION SINCE 1908
Lab-Line Plaza—15th & Bloomingdale Aves.—Melrose Park, Illinois 60160

INSTRUCTION MANUAL NO. 9-056-243-00

WATER BATH, ELECTRIC, PRECISION, 6 RACK
115 V. 50/60 Cycle, A.C. (Lab-Line No. 3086)

D.S.A. CONTRACT NO. 120-75-M-BW53 NATIONAL STOCK NO. 6640-00-765-0599
120-75-M-HE40

IMPORTANT: Examine crate, cartons, and their contents for damage. If any damage is apparent, call carrier immediately and file claim.

FAILURE TO CALL FOR INSPECTION WITHIN A FEW DAYS AFTER RECEIPT OF THE SHIPMENT, ABSOLVES THE CARRIER FROM ANY LIABILITY FOR DAMAGE. YOU MUST CALL FOR INSPECTION PROMPTLY.

UNPACKING: Unpack carefully, make certain that all parts are accounted for before discarding packing materials.

WARNING: There is a rotatable plastic covered magnetic collar at the top of the thermoregulator, DO NOT REMOVE.

PACKING LIST

NUMBER REQUIRED	ITEM
1	Water Bath, Cat. #3086
1	Gable Cover
1	Thermometer
1	Thermometer Holder with Rubber Grommets
1	Thermoregulator
1	Thermoregulator Bracket with Rubber Bushing
1	Drain Valve
1	Water Level Regulator
1	Diffuser Platform
1	Teflon Stirring Bar
1	Stirring Bar Centering Disc
4	Rubber Feet

In the event of control or application problems, or if you have any inquiries about this or other laboratory products, the sales and engineering staffs of Lab-Line Instruments, Inc., and subsidiaries are at your service.

GROUP OF COMPANIES: CLINICAL SCIENTIFIC EQUIPMENT CO. ■ LAB-LINE BIOMEDICAL PRODUCTS, INC.
LAB-LINE EDUCATIONAL PRODUCTS, INC. ■ LAB-LINE/ENFIELD INDUSTRIAL CORP. ■ LAB-LINE ENVIRONEERS, INC.
LAB-LINE LABORATORY CAGES, INC. ■ LAB-LINE INSTRUMENTS, INTERNATIONAL

INSTALLATION

1. Select a convenient location for the bath, where it will be free from drafts or strong air currents, and where it will not likely be disturbed by extraneous vibration.

2. Insert rubber feet into holes at bottom of bath.

CAUTION: Elimination of feet will prevent proper air venting of electrical components; resulting in erratic temperature control and excessive heat build up on electrical components.

3. It is important that the bath be placed on a level surface.

4. Install drain valve into the lower bath fitting. Use thread sealing compound.

5. Install water level regulator. Run lock nut against regulator body, apply thread sealant, thread into bath fitting, position upright and lock nut against fitting.

NOTE: When constant water feed is desired, attach rubber tubing from water source to hose barb. Also attach tubing to adjustable overflow tube and lead to a convenient drain.

6. Mount thermoregulator bracket onto rear wall with screws provided. Regulator electrical connection must pass thru hole in bracket. Secure wire clamp provided with top mounting screw.

7. Place stirring bar centering disc within the round perforated flow director, with depressed center in downward position.

8. Set stirring bar onto disc.

9. Insert diffuser platform.

10. Fill with water to within 3 3/8" of top edge.

NOTE: See CONTROL instructions for water level regulator adjustment.

NOTE: Pre-warmed water (approx. 1°C below the selected operating temperature) can be used to fill and maintain proper water level, thus reducing heat up and recovery time.

CAUTION: Tests have shown that the use of water with high mineral content as a bath medium will encourage excessive accumulation of sediment on the bath interior. Therefore, it is recommended that distilled or de-mineralized water be used when filling bath.

11. Wet thermometer with water, insert into grommets of holder, and place into bath at the right side of regulator bracket by snapping holder onto rear wall. Set depth to immersion mark on thermometer.

12. Wet glass of thermoregulator with water, and pass thru bushing of bracket. Set mercury bulb as close to diffuser platform as possible. Attach electrical connection cap.

13. Place cover on bath to conserve water and heat.

14. Connect cordset to a properly fused 2-Pole, 3-wire grounding receptacle, of the electrical characteristics as shown on the nameplate of the bath.

CAUTION: Safety regulations require use of a three prong cordset. Do not remove center (ROUND) prong.

CONTROLS

POWER SWITCH:
Controls all electrical power to the bath.

MOTOR SWITCH:
Controls electrical power to stirring motor.

THERMOREGULATOR TEMPERATURE ADJUSTMENT COLLAR:
Provides temperature selection through the use of an electronic relay switch.

PILOT LIGHT:
Flashes when heat is on.

WATER LEVEL REGULATOR:
Provides and maintains selected water level. Adjustable within 1" to 3 3/8" of the bath top edge by sliding center overflow tube to the level selected.

OPERATION

CAUTION: Under no circumstances must the bath be operated until the water level has been checked.

WARNING: Heater must be totally submerged, maintain a minimum of 1" of water above diffuser platform at all times.

1. Move power and motor switches to "ON" positions.

2. Set thermoregulator at temperature of operation on scale of the instrument by turning magnetic collar clockwise to increase and counter-clockwise to decrease temperature set point. This temperature observation is at the pointed portion of the nut to which the contact wire is attached.in the body of the regulator and is an approximate setting. Pilot light will flash, indicating heat on cycle.

3. Allow bath to attain thermal equilibrium before making any temperature re-adjustments.

4. Allow bath to stabilize before loading.

MAINTENANCE

CAUTION: Do not attempt any repair or servicing on the bath without first disconnecting the cordset from the electrical supply.

NOTE: All electrical components are accessable through the bottom of the bath.

IMPORTANT: In case of trouble proceed as follows:

1. Check power supply line and fuse.

2. Check cordset plug for bent blades.

3. Check thermoregulator electrical connection cap.

4. Check thermoregulator for mercury column separation.

NOTE: To remove separation, turn collar counter-clockwise so that the wire is as far down as the top of unseparated column and warm bulb until the mercury column is completely joined.

5. Remove bath bottom and check electrical connections for looseness.

6. Check power and motor switches for on and off operation.

NOTE: To replace a switch, remove locknut at front of control panel.

WARNING: When re-installing a switch, the positioning washer and electrical ground connection must be replaced as originally installed.

7. Check electronic relay for burnt, pitted, or sticking contact points. The contact points are normally closed. Points will open when relay coil is energized. Should points fail to open, check continuity of thermoregulator and relay coil. A defective circuit board assembly will also cause the points to remain in a closed or open position.

NOTE: When replacing circuit board assembly, make sure the components on the board are facing away from the relay.

8. Replace pilot light when it fails to flash during heat ON cycle.

NOTE: To replace, push through mounting hole by applying pressure at rear of light.

9. Check heater for possible burn out.

IMPORTANT: Check continuity after removing leads from terminal board. (BE SURE TO NOTE LOCATION OF LEADS.)

NOTE: To remove heater, remove motor switch from control panel. Disconnect the power switch, pilot light, cordset, and thermoregulator leads. Remove

four motor mounting plate nuts. Mounting plate with motor and insulation retainer can now be withdrawn from bath. Remove heater mounting nuts and withdraw heater from inside of bath.

WARNING: When replacing heater, NEW water seal gaskets (copper) must be installed on the water side of the bath bottom.

WARNING: All electrical ground connections MUST be replaced as originally installed, when reassembling water bath.

10. Loss of stirring bar action within bath indicates motor failure.

NOTE: To remove motor, remove bottom of bath and four motor mounting plate nuts. Withdraw motor and mounting plate. When removing motor from plate, remove magnet and magnet holder as an assembly to retain rotational balance.

IMPORTANT: When replacing motor, NEW rubber motor mounts should be installed.

NOTE: Motor does not require lubrication.

11. Do not use coarse abrasives when cleaning the bath, use only mild household cleaners.

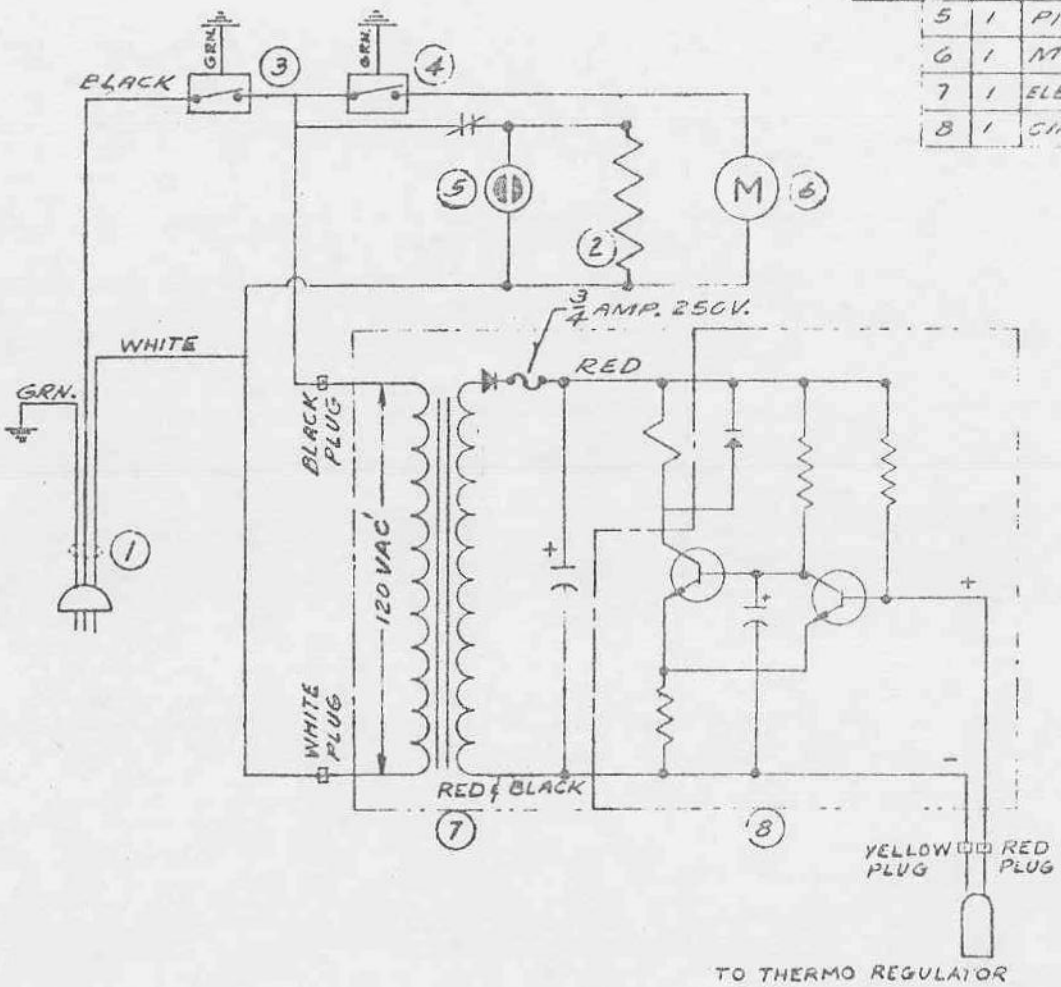
REPLACEMENT PARTS LIST

DESCRIPTION	PART NO.	NAT'L/S.N.	SOURCE	NO. REQ'D
Thermometer	0-910-066-00			1
Thermometer Holder (less grommets)	0-910-022-00			1
Rubber Grommets (Thermometer Holder)	0-790-022-00			2
Gable Cover (less handle)	0-581-112-00			1
Handle (gable cover)	0-560-100-00			1
Rubber Foot	0-790-080-00			4
Control Panel	3-720-141-00			1
Diffuser Platform	0-190-017-00			1
Stirring Bar Centering Disc	0-510-037-00			1
Teflon Stirring Bar	0-620-006-00			1
Drain Valve	0-950-002-00			1
Water Level Regulator	0-730-236-00			1
Thermoregulator Bracket	0-170-433-00			1
Thermoregulator Rubber Bushing	0-690-014-00			1
Thermoregulator	0-910-065-00			1
Electronic Relay Assy (less circ bd)	0-485-022-00	5945-00-846-0434	DESC*	1
Circuit Board Assembly	0-485-023-00			1
Motor	0-370-125-00			1
Rubber Motor Mount	0-790-024-00			4
Magnet	0-620-007-00			1
Magnet Holder	1-620-013-00			1
Cordset	2-470-017-00			1
Heater	0-340-008-00			1
Heater, Water Seal Gasket (copper)	0-530-004-00			2
Power Switch	0-440-042-00	5930-00-359-5500	DESC*	1
Motor Switch	0-440-042-00	5930-00-359-5500	DESC*	1
Pilot Light	1-360-036-00	6210-00-911-9286	DGSC**	1

*Defense Electronic Supply Center
**Defense General Supply Center

PART & DRAWING NO. 2-226-177-00

NO.	REQ	DESCRIPTION	PART NO.
1	1	CORDSET	2-470-017-00
2	1	HEATER 1000W	2-340-008-00
3	1	POWER SWITCH	0-440-042-00
4	1	MOTOR SWITCH	0-440-042-00
5	1	PILOT LIGHT	1-360-036-00
6	1	MOTOR	0-370-125-00
7	1	ELECTRONIC RELAY	0-485-022-00
8	1	CIRCUIT BOARD	0-485-023-00



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ECN	DATE

LAB-LINE INSTRUMENTS, Inc.
LAB-LINE PLAZA/MELROSE PARK, ILL.

PART NAME: ELECTRICAL SCHEMATIC 120 VOLT 50-60 CYCLE		MATERIAL	
USED ON: MAGNESTIR BATH	E/B: 3086	DATE WITH	
DRAWN BY: R.Y.	DATE: 9-24-69	APPROVED BY: [illegible]	QUANTITY
UNLESS OTHERWISE SPECIFIED: FRACTIONS ± 1/64, DECIMALS ± .005, ANGLES ± 1°	SCALE: NONE	ALL DIMS. ARE IN INCHES UNLESS OTHERWISE SPECIFIED. DO NOT SCALE DRAWING	PART & DRAWING NO. 2-226-177-00

Phone: (312) 345-7400
Cable: LABLINE

LAB-LINE INSTRUMENTS, Inc.
DESIGNERS AND MANUFACTURERS OF INSTRUMENTS
FOR SCIENCE, INDUSTRY, AND EDUCATION SINCE 1908
Lab-Line Plaza—15th & Bloomingdale Aves.—Melrose Park, Illinois 60160

INSTRUCTION MANUAL NO. 9-056-242-00

WATER BATH, ELECTRIC, Serological, 6 Rack, 110 Volt, 50-60 Cycle, AC (Lab-Line CS&E No. 13100A).

FEDERAL STOCK NO. 6640-765-0621
D. S. A. CONTRACT NO. 120-73-C-1299

IMPORTANT: Examine crate, cartons and their contents for damage. If any damage is apparent, call carrier immediately and file claim.

FAILURE TO CALL FOR INSPECTION WITHIN A FEW DAYS AFTER RECEIPT OF THE SHIPMENT ABSOLVES THE CARRIER FROM ANY LIABILITY FOR DAMAGE. YOU MUST CALL FOR INSPECTION PROMPTLY.

Notify your dealer of any damage and supply a copy of the carrier's inspection report. He will contact the factory and authorize any action necessary to remedy the situation and assure satisfactory operation of the equipment.

UNPACKING: Unpack carefully, make certain that all parts are accounted for, before discarding packing materials.

PACKING LIST

No. Req.	ITEM
1	Water Bath, Serological
6	Test Tube Rack
1	Gable Cover
1	Thermometer
1	Thermometer Holder with Rubber Grommets
4	Rubber Foot

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INSTALLATION

1. Select a convenient location for the bath, where it will be free from drafts or strong air currents, and where it will not likely be disturbed by extraneous vibration.

2. Insert rubber feet into holes at bottom of bath.

SUBSIDIARIES: CHICAGO SURGICAL & ELECTRICAL CO. ■ LAB-LINE BIOMEDICAL PRODUCTS, INC.
LAB-LINE EDUCATIONAL PRODUCTS, INC. ■ LAB-LINE/ENFIELD INDUSTRIAL CORP. ■ LAB-LINE ENVIRONEERS, INC.
LAB-LINE LABORATORY CAGES, INC. ■ LAB-LINE INSTRUMENTS, INTERNATIONAL

3. It is important that the bath be placed on a level surface.

4. Fill with water to within 1" of top edge.
NOTE: Pre-warmed water (approx. 1°C below the selected operating temperature) can be used to fill and maintain proper water level, thus reducing heat-up and recovery time.

CAUTION: Tests have shown that the use of water with a high mineral content as a bath medium, will encourage excessive accumulation of sediment on the bath interior. Therefore, it is recommended that distilled, or chemically demineralized water be used when filling the bath.

5. Wet thermometer with water, insert into grommets of holder, and place into bath by snapping holder onto center of rear wall. Set depth to immersion mark on thermometer.

6. Place cover on bath to conserve water and heat.

7. Connect cordset to a properly fused 2-pole, 3-wire grounding receptacle, of the electrical characteristics as shown on the nameplate of the bath.

CAUTION: Safety regulations require use of a three prong cordset. Do not remove center (ROUND) prong.

CONTROLS

POWER SWITCH:

Controls all electrical power to the bath.

TEMPERATURE ADJUSTMENT KNOB:

Provides temperature selection through the use of a thermostat.

PILOT LIGHT:

Flashes when heat is on.

OPERATION

CAUTION: Under no circumstances must the water bath be operated until the water level has been checked. MAINTAIN PROPER WATER LEVEL AT ALL TIMES.

1. Move power switch to "ON" position.

2. Rotate temperature adjustment knob to desired setting. Pilot light will flash, indicating heat on cycle.
NOTE: Control panel has reference markings to aid in reproducing temperature settings.

3. Allow bath to attain thermal equilibrium before making any temperature readjustments.

4. Allow bath to stabilize before loading.

MAINTENANCE

CAUTION: Do not attempt any repair or servicing on the bath without first disconnecting the cordset from the electrical supply.

IMPORTANT: In case of trouble proceed as follows:

1. Check power supply line and fuse.

2. Check cordset plug for bent blades.

3. Remove control panel mounting screws and move panel away from bath sufficiently to allow access to rear of panel. Remove bath bottom and insulation.

4. Check electrical connections for looseness.

5. Check power switch for on and off operation.
NOTE: To replace switch, remove locknut at front of panel.

WARNING: When re-installing switch, the positioning washer and electrical ground connection must be replaced as originally installed.

6. Check thermostat for on and off cycling.
NOTE: To replace thermostat, remove temperature adjustment knob, nameplate and mounting screws; in addition to instructions (3) above. Withdraw thermostat bulb through opening at front of bath.

WARNING: When re-installing thermostat, the capillary tubing must not be bent to a radius of less than 1/2 inch. Also the electrical ground connection must be replaced as originally installed.

7. Replace pilot light when it fails to flash during heat on cycle.
NOTE: To replace pilot light, push through mounting hole by applying pressure at rear of light.

8. Check heater for possible burn out.
IMPORTANT: Check continuity after removing all leads from the heater terminals. (BE SURE TO NOTE LOCATION OF LEADS).

NOTE: To remove heater, withdraw thermostat bulb through opening at front of bath; being careful not to damage the bulb, bulb retainer, and capillary. Separate the inner and outer bodies. Carefully slide heater and bulb retainer out from under the heater clamps.

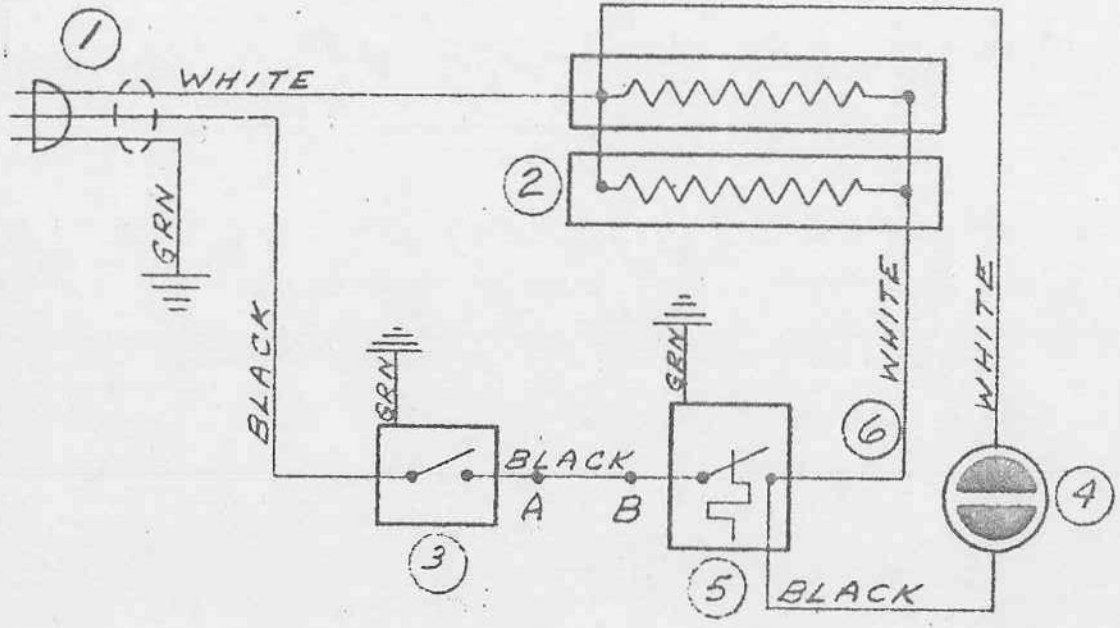
IMPORTANT: Do not under any circumstances attempt to alter the shape of the bulb retainer and heater clamps. This would destroy the hold down pressure designed into these parts. All thermal insulation must be replaced as originally installed. Make sure insulation is placed between heater and internal wiring.

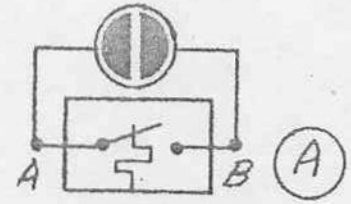
9. Do not use coarse abrasives when cleaning the bath, use only mild household cleaners.

REPLACEMENT PARTS LIST

DESCRIPTION	PART NO.	FEDERAL S.N.	SOURCE NO.	REQ'D
Thermometer	0-910-066-00			1
Thermometer Holder (less grommets)	0-910-022-00			1
Rubber Grommet (Thermometer Holder)	0-790-022-00			2
Gable Cover (less handle)	0-581-112-00			1
Handle (gable cover)	0-560-100-00			1
Test Tube Rack	0-000-193-00	6640-442-6450	DPSC	6
Rubber Foot	0-790-080-00			4
Control Panel	3-720-140-00			1
Temperature Adjustment Knob	0-560-027-00	5355-957-1732	DISC	1
Cordset	2-470-105-00			1
Heater	2-340-002-00			2
Power Switch	0-440-042-00	5930-359-5500	DESC	1
Pilot Light	1-360-036-00	6210-911-9286	DGSC	1
Thermostat	0-920-004-00			1
Thermostat Bulb Retainer	0-170-431-00			1

PART & DRAWING NO.
1-226-173-00





OPTIONAL
SAFETY T-STAT &
PILOT LIGHT

A	ADDED REVISION.	2445	7-24-69
		ECN	DATE

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NO.	REQ.	DESCRIPIPTION	PART NO.
1	1	CORDSET	2-470-105-00
2	2	HEATER 200 W.	2-340-002-00
3	1	POWER SWITCH	0-440-042-00
4	1	PILOT LIGHT	1-360-036-00
5	1	THERMOSTAT	0-920-004-00
6	1	HEATER HOOK-UP WIRE	0-470-110-00

LAB-LINE INSTRUMENTS, Inc.
LAB-LINE PLAZA/MELROSE PARK, ILL.

PART NAME: WIRING DIAGRAM 120 VOLTS 50-60 CYCLE		MATERIAL	
USED ON: SERO. WATER BATH	B/M: 13100		
DRAWN BY: E. W.	DATE: 7-24-69	APPROVED BY: S.K.K.	QUANTITY
UNLESS OTHERWISE SPECIFIED: FRACTIONS ± 1/64, DECIMALS ± .009, ANGLES ± 1°	SCALE: S	DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. DO NOT SCALE DRAWING	PART & DRAWING NO. 1-226-173-00

Phone: (312) 450-2600
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TWX 910-236-0402
Cable: LABLINE

LAB-LINE® INSTRUMENTS, Inc.
DESIGNERS AND MANUFACTURERS OF INSTRUMENTS
FOR SCIENCE, INDUSTRY, AND EDUCATION SINCE 1908
Lab-Line Plaza—15th & Bloomingdale Aves.—Melrose Park, Illinois 60160

INSTRUCTION MANUAL

NSN-6640-00-765-0621

WATER BATH ELECTRIC SEROLOGICAL

5-Rack, 115V, 50-60 Hz A.C.

(Lab-Line No. 18005, 18005-2, 56100)

CONTRACT NO. DLA-120-80-C-4096
DLA-120-79-MEV01

FOREWARD

Data and information contained in this manual was compiled by the Engineering Department to enable users of Lab-Line equipment to have a complete understanding of the operation functional capabilities and maintenance of the equipment.

SPECIAL APPLICATIONS

If you require help with special applications using Lab-Line equipment, or are contemplating a new application you may contact the Lab-Line Technical Director for help. Lab-Line welcomes the interaction from the users of our equipment to help us to better satisfy the users' requirements.

IMPORTANT: Examine shipping carton and water bath for damage. If any damage call carrier immediately and file claim.

UNPACKING: Unpack carefully. Do not throw away packing materials until they are examined carefully. Make certain that all parts are accounted for.

PACKING LIST

1 Lab-Line Imperial III Water Bath
1 Instruction Manual
1 Inspection Tag
1 Warranty Registration Card

OPERATION

CAUTION: DO NOT TURN MAIN POWER "ON" UNTIL BATH HAS BEEN FILLED WITH LIQUID.

CAUTION: Tests have shown that the use of water with a high mineral content as a bath medium will encourage corrosion beneath the accumulation of sediment on the bath interior. Therefore, it is recommended that distilled, or chemically softened water be used when filling the bath. To further insure against corrosion, a periodic cleaning and drying of the bath is also suggested.

NOTE: Wire brushes, or harsh abrasives should not be used for cleaning. Use household cleansers.

Before making the electrical connection, make certain the outlet has the same characteristics as shown on the nameplate. This unit should be plugged into a standard three prong grounded outlet.

INSTRUCTIONS

Place the water bath on a table or work area in a level position and free from direct drafts. Fill the water compartment with water to within one-inch from the top. Insert the thermometer through the special holder, and place it in the bath so that the mercury bulb is about 3" below the top of the bath.

Turn the power "ON." The pilot lamp will now light up, indicating that the temperature of the water is below the temperature for which the thermoregulator was set. It will be noticed that any temperature when first started will gradually climb to the desired point. Therefore, no adjustments should be made until the bath has stabilized for at least 30 minutes. The numbers on the front plate do not indicate temperature, but are for reference purposes only.

TEMPERATURE CONTROL

Bath has a temperature control system located on the control panel consisting of:

1. Control thermostat with graduated configuration and pilot light.

2. A high safety thermostat with graduated configuration and pilot light.

To set temperature for the bath, first rotate safety dial clockwise to its maximum setting. Select desired bath temperature by rotating "control" dial clockwise (dial numbers are for reference only); pilot light will indicate when heat is actually on.

NOTE: Safety thermostat is used to limit the temperature of the bath to a temperature slightly above the bath termperature. At that point, the thermostat will activate a safety light and turn off the electric heater.

Allow bath to reach thermal equilibrium at the selected temperature. When "control" pilot light is on, turn safety dial counterclockwise until safety pilot light is activated, and "control" light goes off; immediately advance safety dial clockwise until "control" light goes on and safety light goes off. Advance should be held to a minimum. Safety set-point must be reset whenever bath temperature is altered.

DIAGNOSIS OF COMMON PROBLEMS

PROBLEM	DIAGNOSIS
1) Unit is non-operative.	A) Unit not plugged in and/or not plugged in to proper outlet. B) Switch in "off" position.
2) Unit does not heat up.	A) Unit not plugged in and/or not plugged in to proper outlet. B) Switch in "off" position. C) Thermostat knob set to 0. D) Faulty heater. E) Faulty thermostat. F) Temperature of the bath higher than the safety thermostat will allow and consequently has turned off the heater (read the paragraph under "Temperature Control".)
3) Temperature will not increase as thermostat knob is turned to the right.	A) Safety thermostat must be adjusted for every different setting.
4) Safety light is on.	A) Safety thermostat has activated the safety light indicating the heater has been turned off because water temperature is higher than the desired setting.

CAUTION NOTE

When using a gable cover:

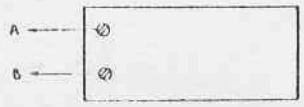
Be careful when removing cover that the thermometer (which is inserted into the cover) is removed or that caution is used when placing the cover on a flat surface that the thermometer is not broken.

In the event of control or application problems, or if you have any inquiries about this or other laboratory products, the sales and engineering staff of Lab-Line Instruments, Inc., and subsidiaries, are at your service. Please see your dealer, or write directly to:

LAB-LINE INSTRUMENTS, INC.
Designers and Manufacturers
Lab-Line Plaza
15th & Bloomingdale Aves.
Melrose Park, Illinois 60160

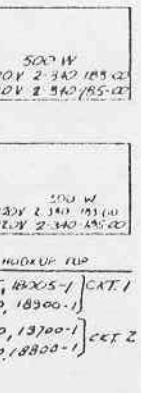
REPLACEMENT PARTS LIST

WIRING DIAGRAM	4-227-123-00
THERMOSTAT	0-920-232-00
THERMOMETER	0-910-003-00
SWITCH	0-440-098-00
CORDSET	0-470-105-00
GROMMET	0-790-022-00
THERMOMETER BRACKET (HOLDER)	0-584-096-00
HEATER 500 WATTS	0-340-183-00
INDICATOR LIGHT - RED	0-360-146-00
INDICATOR LIGHT - AMBER	0-360-164-00



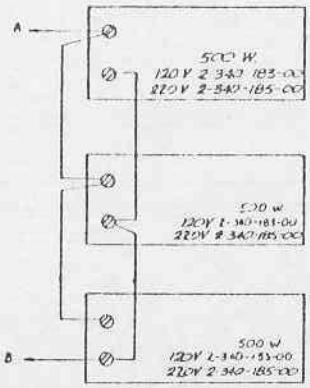
HEATER HOOKUP FOR

120V	500W	2-340-184-00	18050 CKT 1
	500W	2-340-183-00	18000 CKT 1
	500W	2-340-183-00	18700 CKT 1
	500W	2-340-183-00	18800 CKT 1
220V	500W	2-340-186-00	18050-1 CKT 1
	500W	2-340-185-00	18000-1 CKT 1
	500W	2-340-185-00	18700-1 CKT 1
	500W	2-340-185-00	18800-1 CKT 1

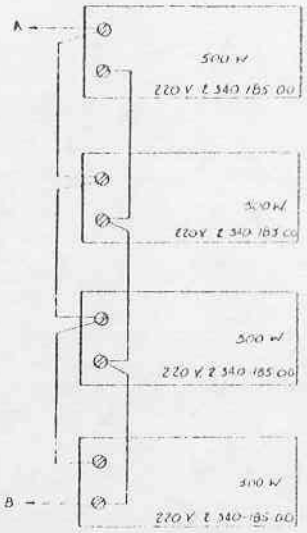


HEATER HOOKUP FOR

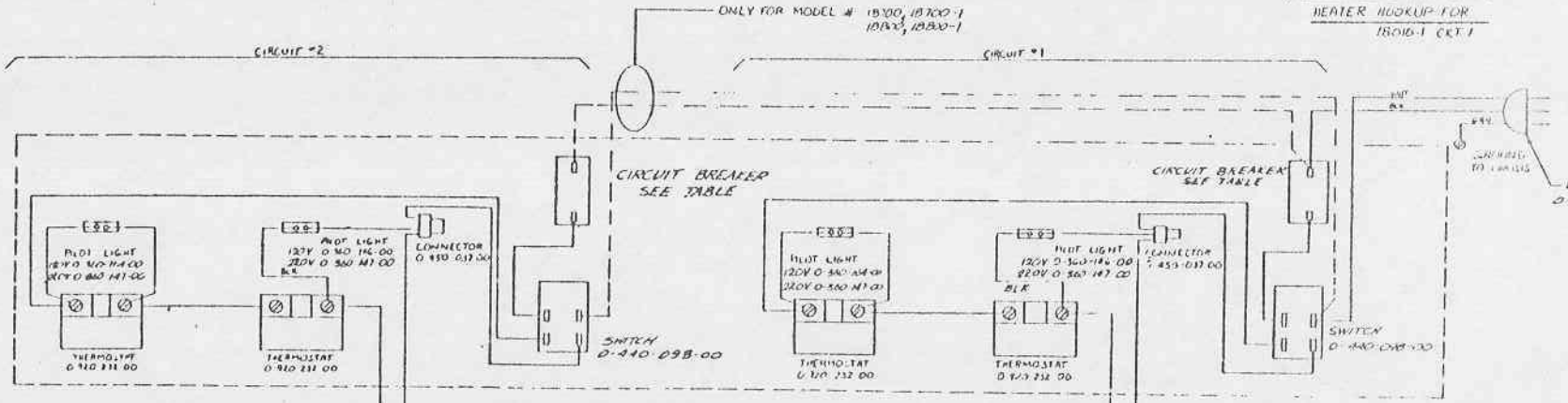
18010, 18005-1 } CKT. 1
18800, 18900-1 }
18700, 18700-1 } CKT. 2
18800, 18800-1 }



HEATER HOOKUP FOR
18010, 18100 & 18100-1 CKT. 1



HEATER HOOKUP FOR
18010-1 CKT. 1



NOTE:

1. CAT NO: 18000, 18050, 18005, 18100, 18010, 18010-1, 18900, 18900-1, 18000-1, 18050-1, 18005-1, 18100, USE ONLY CIRCUIT 1.
2. CAT NO: 18700, 18900, 18700-1, 18800-1 USE CIRCUITS 1 & 2.
3. WIRE CALLOUT: 0-470-110-00 16 GA. (WHITE). (INTRA-PANEL CONNECTIONS & TO HEATERS)

TABLE

CIRCUIT BREAKER	PART NO	CIRCUIT #1	CIRCUIT #2
2 AMP	0-330-114-00	18050-1	
3 AMP	0-330-115-00	18050 18005 18005-1 18100 18100-1 18010 18010-1 18900 18900-1 18800 18800-1	
5 AMP	0-330-118-00	18700 18700-1	
8 AMP	0-330-140-00	18100-1	
10 AMP	0-330-114-00	18005 18700 18700-1	18900 18900-1
15 AMP	0-330-124-00	18100 18010	

SHEET NO. 1
OF 1 SHEETS
SUBMITTAL NO.
DATE

LAB-LINE INSTRUMENTS, INC.